TEST 2

#1

Read the passage below and answer questions. Spend about 20 minutes.

THE HISTORY AND EVOLUTION OF ORIGAMI

Origami, the traditional Japanese art of paper folding, is renowned for its intricate designs and rich cultural heritage. While most commonly associated with Japan, the practice of folding paper into artistic shapes has historical roots in other regions as well. The name "origami" itself derives from the Japanese words ori (folding) and kami (paper), and its origins can be traced back more than a thousand years. However, the history of paper folding extends beyond Japan, with records suggesting that similar techniques were used in ancient China and the Islamic world.

In Japan, the earliest examples of origami were closely linked to religious practices. Ceremonial folded paper offerings, known as noshi, symbolized prosperity and good fortune. These creations were used during Shinto rituals, reflecting the sacred significance of paper. Over time, origami transcended its ceremonial roots, evolving into a recreational activity enjoyed by people of all ages. By the Edo period (1603-1868), the art form had become a widespread pastime, with simple designs like cranes and frogs capturing the imagination of the Japanese populace.

Origami is far more than a cultural tradition; it is also an educational and scientific tool. In classrooms worldwide, it is used to teach mathematical concepts, offering a tactile way for students to explore geometry, fractions, symmetry and spatial reasoning. For instance, folding a square piece of paper can demonstrate properties such as lines of symmetry and angles, while more complex folds can reveal advanced ideas like modular arithmetic and transformational geometry. Educators often find that the hands-on nature of origami helps students understand abstract concepts in a concrete and visual manner, making learning both engaging and effective.

Beyond its applications in education, origami has inspired innovations in fields such as engineering, medicine, and space exploration. The mathematical principles underlying paper folding have been applied to the design of foldable structures, such as compact satellite panels that expand once deployed in space. Similarly, origami-inspired techniques are being used to develop medical devices like stents that can be folded for insertion and then expanded inside blood vessels. These practical uses highlight the versatility of origami as a bridge between art and science.

The influence of origami is not confined to Japan. In Europe, paper folding traditions date back centuries and were initially decorative in nature. Designs like paper boats, hats, and other simple creations were popular among children and adults alike. In contrast, Japanese origami often sought to replicate elements of the natural world, such as animals, plants, and landscapes. The two traditions eventually merged as global interest in origami grew, leading to a fusion of styles and techniques.

Modern origami has taken on a global identity, blending traditional Japanese methods with innovations from other cultures. Today, contemporary origami artists use specialised papers and incorporate mathematical algorithms to create elaborate, lifelike sculptures. These works of art range from delicate floral arrangements to complex three-dimensional figures, pushing the boundaries of what can be achieved through paper folding. Competitions, exhibitions and workshops further promote the craft, solidifying its status as a universal art form.

Origami has evolved from a simple practice rooted in tradition to a multifaceted discipline that spans art, education and science. Its journey reflects a blend of cultural heritage, mathematical precision, and creative innovation, making it a unique and enduring element of human history.

*Choose **one** correct answer (A, B, C or D).*

What does the word "origami" mean? [1]_____
A. Sacred paper
B. Folding shapes
C. Folded paper
D. Religious symbols

During which period did origami become a common recreational activity in Japan? [2]_____
A. Heian period
B. Edo period
C. Meiji period
D. Showa period

What is one reason educators use origami in mathematics classes? [3]_____
A. To improve motor skills
B. To visualize abstract concepts
C. To teach cultural traditions
D. To simplify arithmetic calculations

How have engineers applied origami principles in space exploration? [4]_____
A. By designing reusable spacecraft
B. By creating lightweight satellites
C. By developing foldable satellite panels
D. By building origami-inspired rockets

What distinguishes Japanese origami from early European paper folding? [5]_____
A. Its use in education
B. Its focus on nature-inspired designs
C. Its decorative function
D. Its use of mathematical algorithms

*Complete the sentences below. Choose **no more than three words** from the passage for each answer.*

- The art of origami originated in Japan but also had [6]_____ in other regions.
- In Shinto rituals, folded paper called [7]_____ was used to symbolize good fortune.
- Folding a square piece of paper helps students understand lines of symmetry and [8]_____.
- Modern origami combines traditional methods with [9]_____ to create intricate designs.

Do the following statements agree with the views of the writer in the passage? Write:
***Yes** - if the statement agrees with the views of the writer*
***No** - if the statement contradicts the views of the writer*
***Not Given** - if it is impossible to say what the writer thinks about this*

- Origami was first used in Japan during the Heian period. [10]_____
- The use of origami in schools is limited to primary education. [11]_____
- Origami techniques have influenced the development of certain medical technologies. [12]_____
- Origami exhibitions are held exclusively in Japan. [13]_____

*ADDITIONAL: Answer the questions using **one word** from the passage.*

1. What feature of origami makes it appealing in the field of engineering? _____
2. What is a symbol of luck and good fortune? _____

#2

Read the passage below, three paragraphs (A-C), and answer questions. Spend about 20 minutes.

THE SCIENCE BEHIND SLEEP CYCLES

A. Sleep is an intricate biological process essential to maintaining optimal human health. While the recommended duration for adult sleep falls between seven to nine hours per night, the quality of sleep often outweighs its duration in terms of impact on overall wellbeing. Sleep progresses through distinct stages, beginning with light sleep, transitioning into deep sleep and culminating in the Rapid Eye Movement (REM) phase. Each stage serves a unique and critical function in promoting health. Deep sleep facilitates physical restoration, including tissue growth and repair, as well as bolstering the immune system. Meanwhile, REM sleep plays a pivotal role in enhancing memory consolidation and cognitive abilities, fostering creativity and processing emotions.
The structure of sleep is cyclical, with the brain cycling through these stages multiple times per night. Interruptions to this natural progression can disrupt the balance between the stages, leading to adverse effects on physical and mental health. For example, insufficient deep sleep may hinder physical recovery, while inadequate REM sleep can impair problem-solving skills and emotional regulation.

B. Central to sleep regulation is the circadian rhythm, an internal biological clock that governs the sleep-wake cycle. This rhythm operates on a roughly 24-hour cycle and is influenced by external cues, notably light and temperature. As daylight wanes, the brain responds by producing melatonin, a hormone that induces drowsiness and prepares the body for rest. Conversely, exposure to blue light, such as that emitted by smartphones, tablets and computer screens, inhibits melatonin production. This disruption can delay sleep onset and impair overall sleep quality.
The modern lifestyle often exacerbates this issue, as prolonged screen time and artificial lighting extend wakefulness well beyond natural daylight hours. Moreover, individuals who work irregular shifts, particularly night shifts, face additional challenges. Their exposure to light at unconventional hours disrupts the synchronization between their internal clocks and the external environment. Research indicates that shift workers are at greater risk of developing sleep disorders, chronic fatigue and associated health conditions.

C. The consequences of sleep deprivation extend far beyond mere fatigue. Even short-term sleep loss can impair cognitive performance, reduce attention span, and weaken the immune system, making individuals more susceptible to illness. Chronic sleep deprivation, on the other hand, is associated with severe long-term health risks, including obesity, cardiovascular disease, diabetes, and depression. Prolonged lack of sleep can also exacerbate stress levels, creating a vicious cycle that further erodes sleep quality.
The societal impact of widespread sleep deprivation is substantial. Reduced productivity, workplace accidents, and healthcare costs linked to sleep-related illnesses place a significant burden on economies worldwide. A recent study revealed that countries where sleep deprivation is prevalent experience reduced economic growth due to diminished workplace efficiency and an increase in absenteeism.

D. Despite these challenges, there are strategies to mitigate sleep deprivation and enhance sleep quality. Maintaining a consistent sleep schedule, where bedtime and wake-up times remain stable, can help regulate the circadian rhythm. Creating a sleep-conducive environment, free of noise, excessive light and electronic devices, promotes better sleep. Engaging in relaxing pre-sleep routines, such as reading or practicing mindfulness meditation, can also facilitate the transition to sleep.
Diet and exercise also play significant roles in sleep health. Avoiding stimulants such as caffeine and nicotine, particularly in the hours leading up to bedtime, can prevent sleep disruptions. Regular physical activity, performed earlier in the day, has been shown to improve sleep duration and quality. However, vigorous exercise immediately before bed may have the opposite effect, as it can elevate heart rate and body temperature.
The growing awareness of the importance of sleep has prompted researchers and healthcare professionals to advocate for sleep education and interventions. From promoting "screen-free" hours before bedtime to implementing workplace policies that accommodate the natural sleep-wake cycle, these initiatives aim to combat the modern epidemic of sleep deprivation.

Match the following statements to the correct section of the passage (A, B, C or D).

- Explanation of how technology interferes with sleep. [14]_____

- Strategies to improve sleep quality. [15]_____
- Health risks associated with insufficient sleep. [16]_____
- Description of sleep stages and their functions. [17]_____

- REM sleep primarily benefits physical recovery. [18]_____
- Shift workers are at higher risk of sleep disorders than the general population. [19]_____
- Vigorous exercise before bed improves sleep quality. [20]_____
- Economic productivity is unaffected by sleep deprivation. [21]_____

Complete the sentences using **no more than two words** *from the passage.*

- Interrupting the natural sleep cycle can disturb the [22]_____ between its stages.
- Melatonin is a hormone that prepares the body for [23]_____.
- Policies promoting "screen-free" hours aim to combat [24]_____.

Choose **one** *correct answer (A, B, C or D).*

What does the passage suggest is the most significant factor in regulating the circadian rhythm? [25]_____
- **A.** Temperature
- **B.** Light exposure
- **C.** Exercise levels
- **D.** Hormonal balance

According to the text, what is one of the societal impacts of sleep deprivation? [26]_____
- **A.** Higher birth rates
- **B.** Increased reliance on technology
- **C.** Lower economic productivity
- **D.** Reduced education opportunities

ADDITIONAL: Answer the questions using **no more than two words** *from the passage.*

1. What does REM sleep primarily support? _____
2. What hormone does the brain produce to regulate sleep? _____
3. What effect does sleep deprivation have on the immune system? _____
4. Name one serious health condition linked to chronic sleep deprivation. _____

#3

Read the passage below and answer questions. Spend about 20 minutes.

SUSTAINABLE ARCHITECTURE IN THE 21ST CENTURY

The increasing awareness of climate change and the urgent need to address its consequences have prompted significant shifts in numerous industries, not least the field of architecture. As a result, the concept of "sustainable architecture" has gained considerable momentum. This architectural philosophy emphasizes designing buildings that minimize their ecological footprint, conserve natural resources, and contribute positively to the environment. These structures, often referred to as "green buildings," incorporate eco-friendly materials, energy-efficient systems, and renewable energy sources to achieve their goals.

One of the core principles of sustainable architecture is resource efficiency. By employing materials sourced locally, architects can reduce the carbon emissions associated with transportation. Locally sourced materials also tend to be better suited to the climatic and geographical conditions of the region, which can improve the building's performance in terms of energy efficiency. For instance, using clay bricks in arid climates or timber in forested areas not only supports sustainability but also enhances the overall resilience of the structure.

Another fundamental aspect of sustainable architecture is energy management. Traditional buildings often rely heavily on fossil fuels, which contribute to greenhouse gas emissions. In contrast, sustainable structures prioritize renewable energy sources, such as solar panels, wind turbines, and geothermal heating systems. Solar panels, in particular, have become increasingly common in both residential and commercial constructions, enabling buildings to generate a portion, if not all, of their electricity. Furthermore, energy-efficient technologies, including LED lighting and smart home systems, allow occupants to reduce energy consumption and monitor usage in real time.

One noteworthy innovation in green architecture is the integration of "green roofs" and vertical gardens. Green roofs, which involve covering rooftops with vegetation, provide multiple benefits. They serve as natural insulators, helping to regulate indoor temperatures by reducing heat loss in winter and heat gain in summer. Additionally, they mitigate the urban heat island effect - a phenomenon where cities experience higher temperatures than surrounding rural areas due to heat-absorbing infrastructure like asphalt and concrete. Vertical gardens, meanwhile, introduce greenery to the facades of buildings, offering aesthetic appeal alongside environmental benefits, such as air purification and noise reduction.

Water conservation is another priority in sustainable building practices. Many green buildings incorporate systems to harvest rainwater, recycle wastewater, or optimize water usage through low-flow fixtures. These measures not only reduce water consumption but also alleviate pressure on local water supplies, which is particularly crucial in drought-prone regions.

A critical aspect of sustainable architecture is its social impact. Green buildings are often designed with the well-being of their occupants in mind. Features such as ample natural lighting, improved indoor air quality, and noise insulation contribute to healthier and more comfortable living or working environments. Studies have shown that exposure to natural light enhances productivity and reduces stress, while clean air can prevent respiratory issues. Moreover, lower utility costs resulting from energy and water efficiency make sustainable housing more accessible to a broader population.

Despite these advantages, the widespread adoption of sustainable architecture faces several challenges. One significant obstacle is the upfront cost associated with implementing green technologies and materials. Solar panels, for example, require a substantial initial investment, even though they pay off over time through reduced energy bills. Another challenge is the lack of awareness and expertise among builders and developers, which can hinder the successful execution of sustainable projects. Policymakers also play a critical role in promoting green architecture by offering incentives, such as tax breaks or grants, to encourage eco-friendly construction practices.

Globally, numerous examples showcase the potential of sustainable architecture. The Bosco Verticale in Milan, Italy, is a striking example of a residential complex with integrated vertical gardens. Each building features hundreds of trees and thousands of plants, which not only provide shade but also improve air quality. Similarly, Singapore's Gardens by the Bay demonstrates how urban spaces can combine functionality with environmental consciousness. These projects highlight the transformative power of sustainable architecture in shaping cities that are both liveable and environmentally responsible.

As the world grapples with the realities of climate change, the role of sustainable architecture becomes increasingly vital. By embracing green building practices, architects and urban planners can contribute to a future where cities coexist harmoniously with the natural world. The journey toward sustainable living may be fraught with challenges, but its benefits for the planet and future generations are undeniable.

*Complete the notes below using **no more than two words** from the passage for each answer.*

Sustainable Architecture
Reduces the ²⁷_____ of buildings.
Incorporates eco-friendly materials and ²⁸_____ energy sources.
Improves indoor environments for ²⁹_____.

Key Principles
Uses ³⁰_____ to minimize transportation emissions.
Integrates renewable energy like ³¹_____.
Adopts innovative designs such as ³²_____ to improve insulation.

Global Examples
Bosco Verticale: Buildings with ³³_____ that enhance air quality.

Do the following statements agree with the information given in the passage? Write:
True - *if the statement agrees with the information*
False - *if the statement contradicts the information*
Not Given - *if there is no information on this*

- Sustainable buildings rely entirely on solar energy. ³⁴_____
- Green roofs can help reduce urban temperatures. ³⁵_____
- Builders frequently use green materials due to their low cost. ³⁶_____
- Sustainable buildings always reduce long-term utility expenses. ³⁷_____

Match the innovations (A-D) with their benefits mentioned in the passage.

- Help conserve water. ³⁸_____
- Generate renewable energy. ³⁹_____
- Improve urban aesthetics. ⁴⁰_____

A. Smart home systems
B. Vertical gardens
C. Low-flow fixtures
D. Solar panels

*ADDITIONAL: Answer the questions using **no more than three words** from the passage.*

1. Name one benefit of using local materials in sustainable architecture. _____
2. What type of renewable energy is commonly used in sustainable buildings? _____
3. Which architectural feature can improve both insulation and urban air quality? _____
4. What is the main benefit of green architecture for city residents? _____
5. Why do architects use natural ventilation in sustainable buildings? _____
6. How do sustainable buildings affect waste production? _____
7. Which architectural element has a positive impact on air quality? _____

VOCABULARY

Absenteeism ⇨ Regular absence from work or school without a good reason.
High absenteeism rates can disrupt productivity in the workplace.

Ample ⇨ Enough or more than enough; plentiful.
The kitchen has ample storage for all your cooking needs.

Arid ⇨ Very dry, with little or no rainfall.

The arid desert landscape is home to only a few hardy plants.

Bolstering ⇨ Supporting or strengthening something.
The new evidence is bolstering her argument in court.

Combat ⇨ To fight against something harmful or challenging.
Governments are introducing policies to combat climate change.

Confined ⇨ Restricted to a small or narrow space.
The dog felt confined in its small crate all day.

Consolidation ⇨ The process of making something stronger or more solid.
The consolidation of the two companies improved their market position.

Cues ⇨ Signals or hints that guide behavior or action.
The teacher gave subtle cues to help students find the answer.

Deprivation ⇨ A lack or shortage of something essential.
Sleep deprivation can seriously affect your health and concentration.

Erode ⇨ To gradually wear away or deteriorate.
Strong waves eroded the cliffs over time.

Exacerbate ⇨ To make a problem or situation worse.
The heavy traffic exacerbated her already bad mood.

Facilitate ⇨ To make a process easier or smoother.
The new software will facilitate communication within the team.

Fatigue ⇨ Extreme tiredness resulting from mental or physical exertion.
After running the marathon, she was overwhelmed with fatigue.

Grapples ⇨ Struggles or deals with a challenging problem.
The city grapples with rising homelessness and unemployment.

Heat-absorbing ⇨ Capable of taking in and retaining heat. *The dark roof tiles are more heat-absorbing than lighter ones.*

Hinder ⇨ To make it difficult for something to happen. *The heavy rain may hinder the progress of construction work.*

Incentives ⇨ Something that motivates or encourages someone to do something.
The company offers financial incentives to employees who meet their goals.

Induce drowsiness ⇨ To cause someone to feel sleepy.
The medication may induce drowsiness, so avoid driving after taking it.

Low-flow fixtures ⇨ Devices that reduce water usage.
Installing low-flow fixtures in the bathroom can save a lot of water.

Mere ⇨ Being nothing more than or just.
He dismissed the suggestion as a mere misunderstanding.

Notably ⇨ In a way that is worthy of attention.
She has won many awards, most notably for her ground-breaking research.

Prompt ⇨ To cause someone to act or do something.
The teacher's question prompted a lively discussion in class.

Resilience ⇨ The ability to recover quickly from difficulties.
Her resilience in the face of adversity was truly inspiring.

Solidifying ⇨ Becoming firm, stable, or more definite.
The team is solidifying their plans for the big event.

Spans ⇨ Extends over or covers a period or area.
The bridge spans across the wide river.

Spatial reasoning ⇨ The ability to think about objects and their positions in space.
Architects need strong spatial reasoning to design functional buildings.

Stents ⇨ Small tubes inserted into blood vessels to keep them open.
The surgeon placed stents in the patient's arteries to improve blood flow.

Susceptible ⇨ Likely to be affected or harmed by something.
Children are more susceptible to colds during winter.

Tissue ⇨ A group of similar cells in the body performing a specific function.
The injury damaged the muscle tissue in his leg.

Trace back ⇨ To find the origin or source of something.
Scientists can trace back the origins of the disease to a specific region.

Transcend ⇨ To go beyond the limits of something.
Her performance transcends all expectations and inspires everyone.

Versatility ⇨ The ability to adapt or be useful in different situations.
The versatility of this tool makes it ideal for a variety of tasks.

Vigorous ⇨ Strong, energetic, or forceful.
The coach recommended vigorous exercise to improve fitness.

Wane ⇨ To decrease or diminish in strength or intensity.
Interest in the project began to wane after several delays.

TASK 1

Choose the correct answer.

1. Which word means "to reduce or worsen a condition"?
   A. Facilitate
   B. Exacerbate
   C. Resilience
   D. Mere

2. What is the best synonym for "fatigue"?
   A. Energy
   B. Weakness
   C. Resilience
   D. Incentives

3. "Trace back" most closely means:
   A. Move forward
   B. Examine history
   C. Increase scope

D. Confine

4. Which word describes "capable of recovering quickly"?
   A. Confined
   B. Spatial reasoning
   C. Resilience
   D. Waning

5. What do "stents" help with?
   A. Combat fatigue
   B. Induce drowsiness
   C. Facilitate blood flow
   D. Absorb heat

6. "Arid" typically describes:
   A. Areas with water abundance
   B. Dry or barren regions
   C. Heat-absorbing structures
   D. Vigorous movements

7. "To hinder" means:
   A. To encourage
   B. To obstruct
   C. To trace back
   D. To transcend

8. Which term refers to "significant details or examples"?
   A. Cues
   B. Notably
   C. Mere
   D. Combat

9. What does "induce drowsiness" mean?
   A. To facilitate waking up
   B. To cause sleepiness
   C. To hinder activity
   D. To enhance focus

10. What does "grapples" mean in a metaphorical sense?
    A. To remove something
    B. To struggle with a challenge
    C. To consolidate information
    D. To bolster morale

TASK 2

Use the correct word to fill in the blanks. Each word can be used only once.

1. Engineers installed _____ to keep the arteries open.
2. The company is offering financial _____ to encourage eco-friendly practices.
3. Long-term stress can _____ your immune system.
4. During the dry season, the _____ landscape became even more barren.
5. The strategy aims at _____ teamwork among employees.
6. Overworking can _____ feelings of exhaustion.
7. Artists often _____ cultural boundaries with their work.
8. The school uses games to _____ learning for young children.
9. The introduction of _____ fixtures reduced water usage significantly.

10. The athlete's _____ training regimen helped improve her stamina.

TASK 3

Match the words with their synonyms.

1. Arid
2. Bolstering
3. Confined
4. Cues
5. Deprivation
6. Exacerbate
7. Grapples
8. Mere
9. Resilience
10. Trace back

- ☐ Dry
- ☐ Examine history
- ☐ Lack
- ☐ Restricted
- ☐ Signals
- ☐ Simple
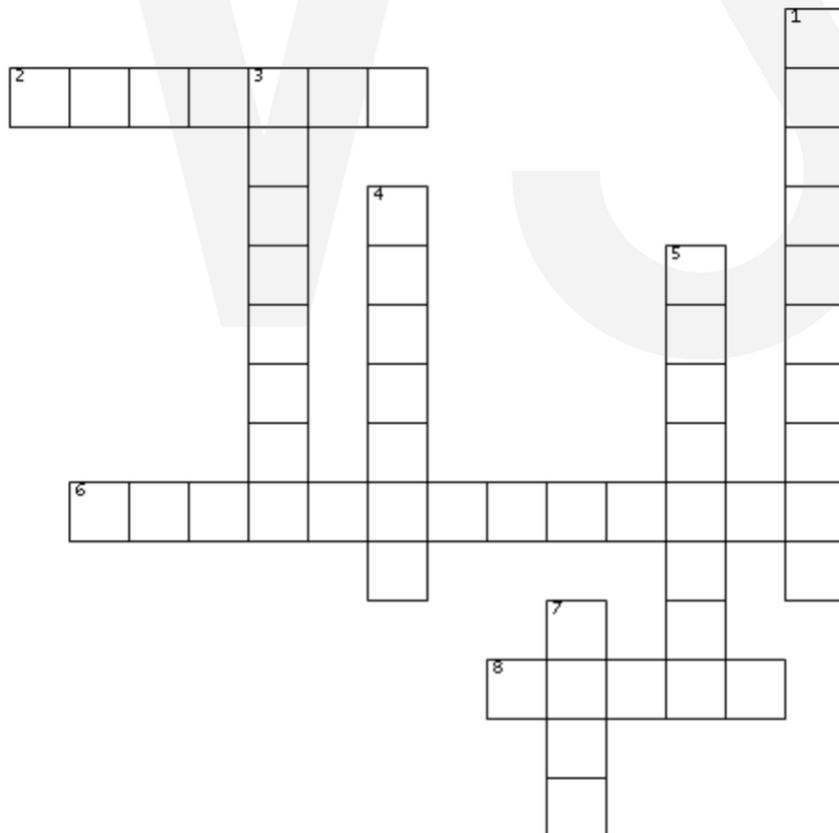- ☐ Struggles
- ☐ Supporting
- ☐ Toughness
- ☐ Worsen

TASK 4

Create mind maps or infographics with the following headlines.

"Words of Power"	"Health and Lifestyle Terms"	"Environmental Words"

TASK 5

Solve the crossword.

TASK 6

Solve the word scramble.
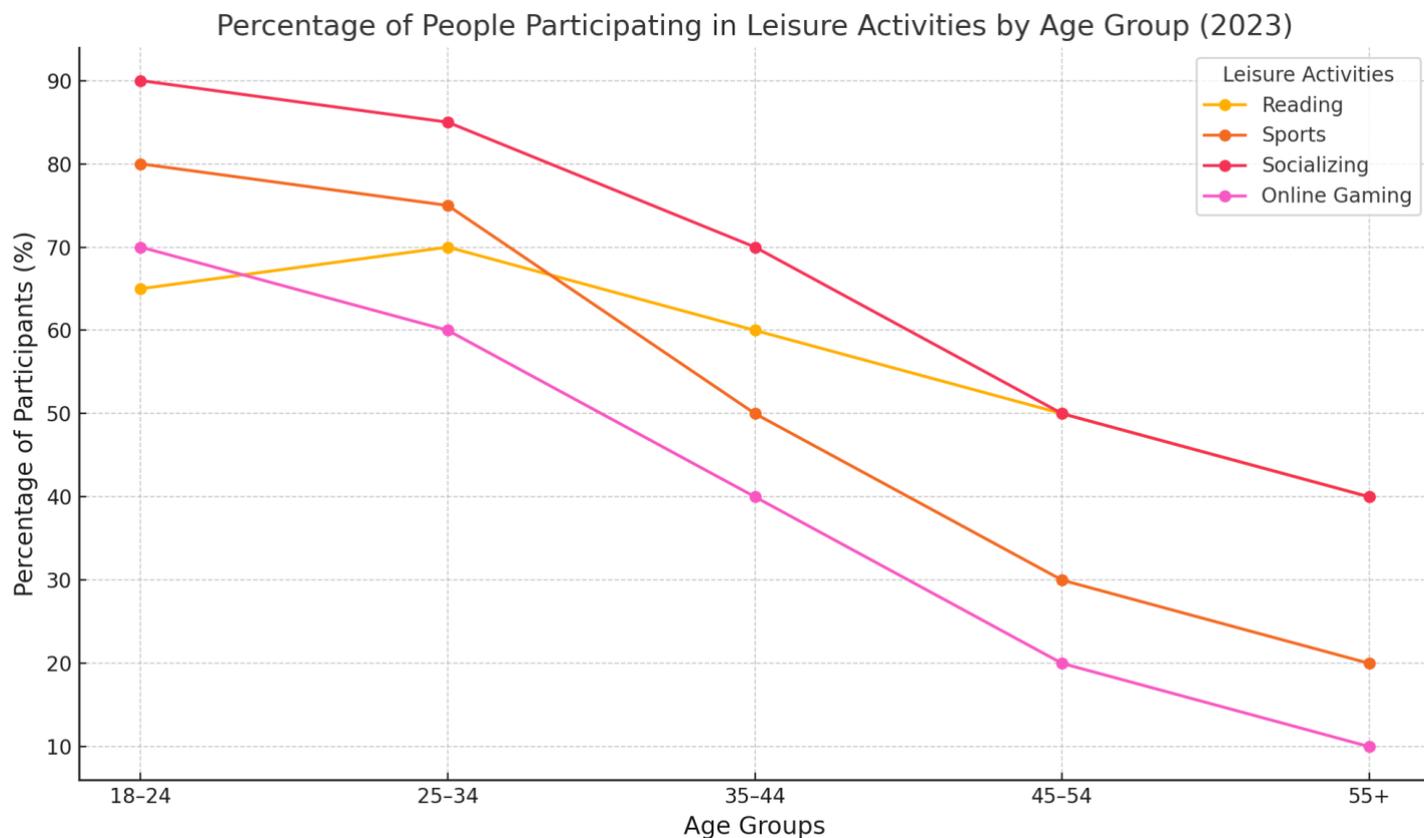
1. CBRATE KCA _____
2. ECTSRNNAD _____
3. EPLAM _____
4. ESABSMNEEIT _____
5. NRDEIH _____
6. RDOEE _____
7. SNTEVCEIIN _____
8. TBACOM _____
9. UCDEIN RONSWIDESS _____
10. YITSVRAITLE _____

#1 (20 minutes)

The graph below shows the percentage of people of different age groups in a European country who participated in various leisure activities in 2023.

Percentage of People Participating in Leisure Activities by Age Group (2023)

Summarize the information by selecting and reporting the main features, and make comparisons where relevant. Write at least 150 words.

#2 (40 minutes)

Discuss both views and give your own opinion. Write at least 250 words.

> **Some people think that public libraries are no longer necessary in the modern world as they are being replaced by digital alternatives. Others believe that libraries still play a crucial role in society.**

Give reasons for your answer and include any relevant examples from your knowledge or experience.